

Appl. No. 09/902,494
Amendment dated September 30, 2004
Reply to Office Action of June 1, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently amended) A method for injecting a fluid into a woody plant, the method comprising:

(a) providing:

- (i) a fluid reservoir for containing a fluid;
- (ii) a gas reservoir for containing a gas;
- (iii) a needle having a proximal end and a distal end, comprising:
 - (1) an inner conduit;
 - (2) a sealed tip terminating in a point at the distal end;
 - (3) an outer surface; and
 - (4) at least one aperture connecting the inner conduit and the outer surface and proximate to the point at said distal end; and
- (iv) a hand-held injector connectable to the fluid reservoir and the gas reservoir, wherein the hand-held injector can push at least a portion of the fluid from the fluid reservoir with at least one piston actuated by at least a portion of the gas from the gas reservoir without the gas contacting and mixing with the fluid, through the inner conduit of the needle and out of the at least one aperture;

(b) inserting the needle into the woody plant; and

(c) injecting, via the hand-held injector, at least a portion of the fluid from the fluid reservoir using at least a portion of the gas from the gas reservoir without the gas contacting and mixing with the fluid, through the inner conduit of the needle and out of the at least one aperture and into the woody plant; thereby injecting only the fluid into the woody plant.

2. (Original) The method of Claim 1, wherein the woody plant is a tree.

3. (Original) The method of Claim 1, wherein the woody plant is a palm tree.

4. (Original) The method of Claim 1, wherein the method is repeated one or more times on the same woody plant.

5. (Original) The method of Claim 1, wherein the fluid is a treatment for a disease condition.

6. (Original) The method of Claim 1, wherein the fluid is a treatment for an insect infestation.

7. (Original) The method of Claim 1, wherein the fluid is a nutrient.

8. (Original) The method of Claim 1, wherein the fluid is a suspension.

9. (Original) The method of Claim 1, wherein the needle is inserted into expansion tissue.

10. (Original) The method of Claim 1, wherein the needle includes two apertures.

11. (Previously presented) The method of Claim 1, wherein the at least one aperture connecting the inner conduit and the outer surface is at a forward angle relative to the longitudinal axis of the needle.

12. (Previously presented) The method of Claim 11, wherein the at least one aperture is at an angle of about 50° to about 130° relative to the longitudinal axis of the needle.
13. (Previously presented) The method of Claim 12, wherein the at least one aperture is at an angle of about 60° to about 120° relative to the longitudinal axis of the needle.
14. (Previously presented) The method of Claim 12, wherein the at least one aperture is at an angle of about 65° relative to the longitudinal axis of the needle.
15. (Previously presented) The method of Claim 1, wherein at least a portion of the outer surface of the needle between the point and the at least one aperture includes a taper.
16. (Original) The method of Claim 15, wherein the needle has a first portion from the proximal end to a shoulder point, wherein said outer surface of said first portion has a first taper, and a second portion from the shoulder point to the distal end, wherein said second portion has a second taper which is substantially greater than the first taper.
17. (Original) The method of Claim 16, wherein the second taper has an angle of about 10° to about 50° relative to the longitudinal axis of the needle.
18. (Currently amended) A method for injecting a medicament into a plant with a hand-held injector comprising:
 - (a) providing a medicament for the plant;
 - (b) providing a compressed gas for injecting the medicament into the plant; and
 - (c) with the hand-held injector, injecting, by motion of at least one piston actuated by at least a portion of the compressed gas without the gas contacting and mixing with the

medicament, ~~medicament~~ through a needle fixed relative to the injector through a surface of the plant to inject said medicament into the plant, said at least one piston injecting only the medicament by pushing the same through the surface of the plant.

19. (Previously presented) The method of Claim 18 wherein said medicament is selected from the group consisting of: a fertilizer, a pesticide, a fungicide, an herbal composition, a growth regulator and a hormone.

20. (Previously presented) The method of Claim 18 wherein said gas is selected from the group consisting of: carbon dioxide, air, nitrogen.

21. (Currently amended) An apparatus for injecting a fluid into a woody plant, the apparatus comprising:

- (a) a fluid reservoir for containing a fluid;
- (b) a gas reservoir for containing a gas;
- (c) a needle having a proximal end and a distal end, comprising:
 - (i) an inner conduit;
 - (ii) a sealed tip terminating in a point at the distal end;
 - (iii) an outer surface; and
 - (iv) at least one aperture connecting the inner conduit and the outer surface and proximate to the point at said distal end; and
- (d) a hand-held injector connectable to the fluid reservoir and the gas reservoir, wherein the hand-held injector can push at least a portion of the fluid from the fluid reservoir

with at least one piston actuated by at least a portion of the gas from the gas reservoir without the gas contacting and mixing with the fluid, through the inner conduit of the needle and out of the at least one aperture to inject only the fluid into the woody plant.

22. (Original) The apparatus of Claim 21, wherein the woody plant is a tree.
23. (Original) The apparatus of Claim 21, wherein the woody plant is a palm tree.
24. (Original) The apparatus of Claim 21, wherein the fluid is a treatment for a disease condition.
25. (Original) The apparatus of Claim 21, wherein the fluid is a treatment for an insect infestation.
26. (Original) The apparatus of Claim 21, wherein the fluid is a nutrient.
27. (Original) The apparatus of Claim 21, wherein the fluid is a suspension.
28. (Original) The apparatus of Claim 21, wherein the needle includes two apertures.
29. (Previously presented) The apparatus of Claim 21, wherein the at least one aperture connecting the inner conduit and the outer surface is at a forward angle relative to the longitudinal axis of the needle.
30. (Previously presented) The apparatus of Claim 29, wherein the at least one aperture is at an angle of about 50° to about 130° relative to the longitudinal axis of the needle.
31. (Previously presented) The apparatus of Claim 21, wherein the needle has a first portion from the proximal end to a shoulder point, wherein said outer surface of said first portion has a

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first taper, and a second portion from the shoulder point to the distal end, wherein said second portion has a second taper which is substantially greater than the first taper.

32. (Original) The apparatus of Claim 31, wherein the second taper has an angle of about 10° to about 50° relative to the longitudinal axis of the needle.

33. (Previously presented) The apparatus of Claim 31, wherein the at least one aperture is located between the shoulder point and the proximal end.

34. (Currently amended) A method for injecting a fluid into a woody plant, the method comprising:

- (a) providing:
 - (i) a fluid reservoir for containing a fluid;
 - (ii) a gas reservoir for containing a gas;
 - (iii) a needle having a proximal end and a distal end, comprising:
 - (1) an inner conduit;
 - (2) a sealed tip terminating in a point at the distal end;
 - (3) an outer surface; and
 - (4) at least one aperture connecting the inner conduit and the outer surface and proximate to the point at said distal end; and
 - (iv) a hand-held injector connectable to the fluid reservoir and the gas reservoir, wherein the hand-held injector can push at least a portion of the fluid from the fluid reservoir with at least one piston actuated by at least a portion of the gas from the gas reservoir

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without the gas contacting and mixing with the fluid, through the inner conduit of the needle and out of the at least one aperture, the needle being in a fixed relationship relative to the injector;

- (b) inserting the needle into the woody plant; and
- (c) injecting, via the hand-held injector, at least a portion of the fluid from the fluid reservoir using at least a portion of the gas from the gas reservoir without the gas contacting and mixing with the fluid, through the inner conduit of the needle and out of the at least one aperture and into the woody plant; thereby injecting only the fluid into the woody plant.

35. (Previously presented) The method of Claim 1, wherein the fluid is an herbal product.

36. (Previously presented) The method of Claim 1, wherein the fluid is a growth regulator.

37. (Previously presented) The method of Claim 1, wherein the woody plant is a shrub.

38. (Previously presented) The apparatus of Claim 21, wherein the woody plant is a shrub.

39. (Previously presented) The apparatus of Claim 21, wherein the fluid is an herbal product.

40. (Previously presented) The apparatus of Claim 21, wherein the fluid is a growth regulator.